

A New Epitoniid Species from the Pacific Coast of the Kii Peninsula, Japan

by

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Abstract. *Graciliscalca koshimagani* sp. nov. is described. It is parasitic on an undetermined *Epizoanthus* species, which occurs on the carapace of the crab *Leotomithrax edwardsi* (de Haan, 1839). The new species appears to be morphologically close to *Graciliscalca ishimotoi* Masahito & Habe, 1976, or *Graciliscalca rimbogai* Masahito & Habe, 1976, but differs in having a more inflated body whorl and more axial costae.

INTRODUCTION

Several minute epitoniids were collected in 1988 from an undetermined species of *Epizoanthus* attached to the carapace of the crab *Leotomithrax edwardsi* (de Haan, 1839). The crabs were gathered with a lobster gill net set on the seabed off Kirimezaki, Kii Peninsula, Wakayama Japan. These epitoniids are classified in the genus *Graciliscalca* by their conchological characters (REEVE, 1874; DE BOURY, 1909). MASAHITO & HABA (1976) reported two *Graciliscalca* species collected from the same region, off Kii Peninsula, Japan. Furthermore, according to their description, these two *Graciliscalca* species are also parasitic on minute sea anemones of the genus *Epizoanthus*. However, conchological characters indicate that the specimens collected in 1988 represent a new species of the genus *Graciliscalca*.

TAXONOMY

Family Epitoniidae Röding, 1798

Genus *Graciliscalca* de Boury, 1909

Graciliscalca koshimagani Nakayama, sp. nov.

(Figures 1-6, 10)

Description: Shell rather small, thin, milky white, pyramidally ovate, becoming attenuate toward the small apex. Spire elevated pyramidally with 8 or 9 whorls. Surface with 12 or 13 thin axial costae, interspaces between each two costae crossed by 20-25 very fine spiral threads. Protoconch of 4 smooth, polished whorls. Teleoconch whorls 4 or 5 in number, well rounded with deep suture and slightly separated by riblets. Body whorl width about one-half of shell height and well rounded at the periphery. Aperture ovate, but not angular, rounded, thickened and reflexed at the last costa. Umbilicus closed. Operculum ovate, thin light yellowish brown and paucispiral.

Type deposition and measurements: Type specimens are deposited in the University of California Museum of Paleontology. Holotype, height 5.0 mm and width 3.0 mm (UCMP Type No. 38641); paratype 1, height 6.0 mm and width 3.2 mm (UCMP Type No. 38642); paratype 2, height 3.5 mm and width 2.1 mm (UCMP Type No. 38643).

Explanation of Figures 1 to 9

Figures 1 and 2. *Graciliscalca koshimagani* sp. nov., holotype, off Kii Peninsula, Japan, 34°00'N, 134°48'E, 90 m deep (UCMP 38641), 5.0 mm.

Figures 3-5. *Graciliscalca koshimagani*, paratype 2 (UCMP 38643), 3.5 mm.

Figure 6. Electron micrographs of protoconch of *Graciliscalca koshimagani*, scale line = 64.5 μ m.

Figures 7 and 8. *Graciliscalca rimbogai* Masahito & Habe, 1976, off Kii Peninsula, Japan, 7.0 mm.

Figure 9. Electron micrograph of protoconch of *Graciliscalca rimbogai*, scale line = 106 μ m.



1



2



7



3



4



5



8





10



11

Explanation of Figures 10 and 11

Figure 10. *Graciliscala koshimagani*, parasitic on the cnidarian *Epizoanthus* sp. attached to the carapace of the crab *Leotomithrax edwardsi*.

Figure 11. *Leotomithrax edwardsi* (de Haan, 1839), host of the *Epizoanthus* sp., 30 cm.

Type locality: Offshore Kirimezaki, Kii Peninsula, Minabe Wakayama, Japan (34°00'N, 134°48'E) about 90–120 m deep.

Etymology: *koshimagani* is derived from the Japanese name for *Leotomithrax edwardsi*.

REMARKS

This new species is parasitic on an undetermined species of *Epizoanthus* attached to the carapace of the crab *Leotomithrax edwardsi* (de Haan, 1839). UTSUMI (1976) showed that some *Actiniaria* species also occur on *L. edwardsi*, but this new species is not associated with *Actiniaria*. Although *Leotomithrax edwardsi* may have several tiny zoanths on its carapace, the new species is found only on the *Epizoanthus* species (Figures 3, 10).

From a conchological point of view, this new species is similar to *Graciliscala rimbogai* Masahito & Habe, 1976, but differs by having a more inflated body whorl. The shell height–width ratio of the new species is 1.5–1.9, while in *G. rimbogai* it is 2.2–2.5. Moreover, the new species has 12 or 13 costae where *G. rimbogai* has only 10 or 11. The new species also resembles *Graciliscala ishimotoi* Masahito & Habe, 1976, but *G. koshimagani* sp. nov. can be easily distinguished by its thin costae and pyramidal shape.

Most species of *Graciliscala* occur on species of *Epizoanthus* but the primary associations of *G. koshimagani* sp. nov. differ from those of other *Graciliscala* species. *Graciliscala ishimotoi* is parasitic on *Epizoanthus ramosus* Cargren, which is attached to the surface of dead gastropods such as *Pterynotus pinnatus* (Wood, 1815); *G. rimbogai* is parasitic on an undetermined species of *Epizoanthus* attached to the surface of *Guildfordia triumphans* Philippi, 1841.

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LITERATURE CITED

- DE BOURY, E. 1909. Catalogue des sous-genres de Scalidae. *Journal de Conchyliologie* 57:255–258.
- MASAHITO & T. HABA. 1976. Systematic study of Japanese Epitoniidae (III). *Bulletin of the National Science Museum, Series A (Zoology)* 2(3):169–174.
- REEVE, L. A. 1874. *Conchologia Iconica*, 19, pls. 1–16. Scallaria: London.
- UTSUMI, F. 1976. *Coloured Illustrations of Seashore Animals of Japan*. Hoikusya: Osaka. 166 pp.